THE RECOVERY KERNEL

*Harm Reduction Series*

# RESPECT THE ENVIRONMENT

## Substances, Activities, and the Limits That Keep People Alive

*Drunk Driving · High Driving · Machinery · Trucker Meth · Daredevilism · Trauma Embedding · Dose-by-Environment Protocol*

**People get high and do things. This is a fact.**

**The fun is real. The danger is also real.**

*This guide does not tell you not to use. It tells you what happens to your nervous system, your reaction time, your judgment, and the memory of the experience — and how to set limits that keep the fun while reducing the damage to yourself, others, your property, and your neurons.*

---

# Before the First Page: The Honest Frame

### THE CENTURION — This Guide Is Written for People Who Are Going to Use Substances Regardless. Its Job Is to Reduce the Damage.

Every year, approximately 37,000 people die in traffic fatalities in the United States. Alcohol is involved in approximately 10,000 of those deaths — roughly 28% of all traffic fatalities, every year, for decades. Cannabis is detected in approximately 12% of traffic fatalities and rising. Stimulants in another 5%.

These are not numbers from moral decline. They are numbers from the absence of specific, practical knowledge about what substances do to the specific cognitive functions that specific activities require. The person who drives drunk often does not know that their ability to assess their own impairment is specifically what alcohol impairs first. The person who drives high on edibles did not understand that the onset timeline meant they were not yet at peak impairment when they got in the car.

This guide provides the specific knowledge. Not 'don't use.' Don't use and then operate dangerous things. The distinction is the difference between a harm reduction framework and a moral one.

# I. What Substances Actually Do to Operating Capacity

### THE CENTURION — The Impairment Is Not Experienced the Same Way It Appears from the Outside. That Mismatch Is the Specific Danger.

The most dangerous feature of substance-induced impairment for vehicle and machinery operation is not the impairment itself — it is the fact that most substances specifically impair the person's ability to accurately assess their own impairment. You feel less impaired than you are. This is not a personality flaw. It is a pharmacological mechanism.

| Substance | What is impaired | What FEELS impaired | The specific dangerous mismatch |
|---|---|---|---|
| Alcohol | Reaction time. Depth perception. Divided attention (doing two things at once). Tracking moving objects. Emergency decision-making. AND — crucially — the metacognitive ability to accurately assess any of the above. | Social inhibition (feels better). Mood (feels improved). Physical sensation (feels warm and relaxed). The specific physical impairment is often not felt. | 'I'm fine to drive' is specifically what alcohol causes you to think when you are not fine to drive. The judgment that would tell you your judgment is impaired is the first thing impaired. This is the hardest pharmacological fact to convey to someone who has been drinking. |
| Cannabis — smoked / vaped | Reaction time (delayed). Lane tracking. Distance judgment. Time perception (often underestimating elapsed time). Divided attention impaired at moderate-to-high doses. Emergency response slowed. | For regular users: subjective impairment is often minimal even at doses that produce measurable impairment on objective testing. For occasional users: impairment is more felt but often misattributed to specific sensations rather than operating capacity. | The regular cannabis user who 'drives fine high' — is actually impaired on objective tests, but the tolerance to the subjective feeling of impairment has developed faster than the tolerance to the actual driving impairment. They feel fine. Their brake reaction time is 200ms slower. |
| Cannabis — edibles | Same as smoked but: onset is 30-120 minutes from | Nothing for the first 45 minutes. Then rapidly increasing | The most dangerous driving scenario in cannabis: person consumes edible, |

| | | | |
|---|---|---|---|
| | ingestion. Peak is 2-4 hours after ingestion. Duration is 6-8+ hours. | impairment that can reach a level far beyond what the person intended because the full dose has already been consumed. | waits 30 minutes, feels 'fine,' gets in the car. Peaks at 1.5 hours while on the highway. Has consumed a dose they cannot now avoid. This is the edible driving trap — the entire dose is in the system before the impairment arrives. |
| Stimulants — cocaine, methamphetamine, amphetamines | Initial phase (0-2 hours): may improve alertness and reaction time in sleep-deprived individuals. Impairs impulse control. Increases risk-taking. Decreases loss-aversion. Produces dangerous overconfidence in operating capacity. | Users report feeling sharper, more capable, more alert. This feeling is real at low doses in some conditions. It is specifically dangerous because it produces a sense of enhanced operating capacity during a period when the risk-taking and impulse control impairments are active. | The stimulant user who feels sharp at the wheel may genuinely have faster reaction times — and also dramatically reduced judgment about when to swerve vs. when to floor it. The speed advantage is outweighed by the risk-calculation impairment. |
| Opioids | Sedation. Slowed reaction time. Reduced pain signal (pain is a feedback mechanism; impaired pain response impairs the protective reflexes that pain normally triggers). Nausea in some users. | Warmth, comfort, absence of anxiety. The sedation may not be felt as sedation — it may feel like calm focus. | The person on therapeutic opioids who 'feels fine' is experiencing the anxiolytic and comfort effects while their reaction time and emergency-decision speed are significantly reduced. Opioid-impaired driving is underestimated by drivers and by law enforcement compared to alcohol. |
| GHB | Dose-dependent: low dose produces alcohol-like disinhibition and relaxation. Higher dose produces profound sedation. The transition between doses is steep and unpredictable, especially in combination with | Low-dose GHB feels like mild relaxation. The step to profound sedation can happen within minutes at higher doses. The person using GHB cannot reliably predict which dose they are approaching. | The specific danger: GHB at recreational doses is fine. GHB at recreational doses plus one drink transitions unpredictably to the dose that puts you to sleep. This transition can happen while operating a vehicle. This is why GHB has produced multiple vehicle fatalities from drivers who simply fell asleep at the wheel. |

| | | | |
|---|---|---|---|
| | alcohol. | | |
| Ketamine | Dissociation — the specific feeling of distance from the immediate environment. Depth perception severely impaired. Time perception altered. Physical coordination impaired. At higher doses: complete inability to operate in the physical world. | The early ketamine experience often feels like profound insight and calm — not incapacity. The incapacity is happening but the dissociative state prevents its accurate assessment. | No dose of recreational ketamine is safe for vehicle operation. The dissociation that makes ketamine therapeutically interesting is the same dissociation that makes the external world feel unreal and at arm's length — which it literally should not be while operating a vehicle. |

SECTION A

# VEHICLES

## A.1 — The Core Vehicle Rule

**RULE 1: RESPECT THE CAR FIRST.**

The car is not the place where substances begin. It is the place where substances — if they are in your system — end the evening, end a life, end a relationship, or produce a legal and financial consequence that follows you for a decade. The car is the decision that happens before you use, not after.

This is not a moral statement. It is a sequencing statement. The question 'can I drive later?' should be answered BEFORE the first dose — not from inside the dose. Once you are using, you have already compromised the judgment that should answer that question. The car assessment happens in the clear-headed state. Then the use follows the plan.

| THE BEFORE-USE VEHICLE CHECKLIST | WHY EACH ITEM MATTERS |
|---|---|
| 1. Do I have a confirmed rideshare or designated driver for any driving I will need to do this evening? 2. Is the car parked somewhere I will NOT be tempted or pressured to move it until tomorrow? 3. Have I told someone — a friend, a host — that the car is staying where it is tonight? 4. If the environment changes and I suddenly 'need' to drive, what is my fallback? (Rideshare app installed, emergency taxi number, host who can drive) | 1. The rideshare or DD removes the in-the-moment decision. The plan is made while sober. 2. The car parked in a locked garage or far-away lot is a car you cannot impulsively get into. 3. Social accountability. The person who has told someone 'I'm not driving tonight' has a social commitment that is harder to override than an internal one. 4. Emergencies do not suspend impairment. The thing that feels like an emergency requiring you to drive may be a substance-impaired assessment of an emergency. Having a pre-arranged fallback prevents the 'I have no choice' justification. |

## A.2 — Drunk Driving: Specific Pharmacology

Alcohol impairs driving at lower BAC levels than most people believe. The legal limit in the US (0.08 BAC) is not the impairment threshold — it is the enforcement threshold. Reaction time impairment begins at 0.02 BAC. Divided attention impairment begins at 0.04. Emergency decision-making impairment is significant at

0.05. Most people are over 0.08 before they feel meaningfully impaired, because the feeling of impairment is the last thing to arrive.

| BAC | What is impaired | What it often feels like |
|---|---|---|
| 0.02-0.04 | Some loss of judgment. Slight relaxation. Subtle impairment in tracking tasks. Most people do not feel impaired. | Good. Relaxed. Social. No sense of operating impairment. |
| 0.05-0.07 | Exaggerated behavior, reduced coordination. Reaction time slowing. Tracking impairment. Most people are beginning to be measurably impaired in driving simulations. | Warm and comfortable. Maybe loosening up. Most people at this range will say they are fine to drive. |
| 0.08 (legal limit in US) | Clearly reduced muscle coordination. Reduced reaction time. Reduced ability to detect danger. Impaired self-monitoring. Poor balance. | 'I'm fine.' This is the specific point where alcohol has impaired the assessment of the impairment. Most people at 0.08 believe they are driving well. |
| 0.10+ | Significant impairment of all driving-relevant functions. Slurred speech. Significant reaction time delay. Tunnel vision. | Some people at this range still believe they are fine. Others notice impairment. The metacognitive failure is variable. |

**The time calculation:** Approximately 1 standard drink (12oz beer, 5oz wine, 1.5oz spirits) per hour is metabolized by most adults. This is highly variable by weight, sex, food intake, liver function, and genetic CYP2E1 variant. The calculation to clear: number of drinks consumed above the baseline, divided by 1 drink per hour, equals minimum hours to wait. Add 1 hour buffer. This is not a precise calculation — it is a floor. When in doubt, wait longer or take a rideshare.

## A.3 — High Driving: Cannabis Specific

Cannabis-impaired driving is increasing as cannabis becomes more legally and socially available. The research on cannabis and driving impairment is more complex than alcohol because: (1) THC blood levels are poor predictors of impairment; (2) regular users develop tolerance to subjective impairment faster than to objective driving impairment; and (3) the edible onset problem creates a specific delayed-impairment trap.

| Cannabis form | The specific danger | The minimum wait |
|---|---|---|
| Smoked / vaped — standard dose | Acute impairment peaks at 30-60 minutes after smoking. Reaction time and lane tracking are measurably impaired for 3-4 hours in most users, longer at higher doses. | 3-4 hours minimum from last inhalation. 5-6 hours at higher doses. High-tolerance regular users may show less impairment but objective testing still shows effects. |
| Edibles — this is the high-driving trap | The edible onset trap: person consumes edible, waits 30-45 minutes, feels 'not that high yet,' gets in the car. Peak impairment arrives 1-2 hours after consumption and lasts 4-6 hours from peak. The person has already committed the entire dose before the impairment arrived. | Minimum 6 hours from edible consumption before driving. 8 hours is safer. The rule is simpler: if you have consumed an edible today, you are not driving today. The delayed onset makes precision timing impossible. |
| High-potency concentrate / dab | Concentrates can deliver 60-90%+ THC compared to 15-25% in flower. The impairment at these doses is significantly greater and duration is longer. Regular concentrate users may underestimate impairment because their tolerance calibration was developed at lower potency levels. | 6-8 hours minimum. If you cannot reliably predict your impairment level from concentrate — because the dose variability is high — use the conservative estimate: drive tomorrow. |

## A.4 — The Multi-Substance Combination Problem

**⚠ The combination of alcohol and cannabis at doses that are each individually borderline produces impairment that is MORE than additive. Two borderline-safe inputs produce one clearly unsafe output.**

The specific interaction: cannabis increases the rate of alcohol absorption and reduces the capacity to compensate for alcohol impairment. Alcohol potentiates cannabis intoxication. The person who had two drinks and one joint may be far more impaired than the person who had four drinks with no cannabis. The combination math does not work the way single-substance math does.

Addition rule for multi-substance driving assessment: if you have consumed ANY combination of impairing substances, treat the total impairment as greater than the sum of parts. Do not drive.

SECTION B

# MACHINERY AND TOOLS

## B.1 — The Weed Whacker, the Lawn Mower, and the Power Tool

**THE CENTURION — People Like to Get Outside and Do Things While High. The Problem Is Specifically the Machinery. Your Impairment Does Not Care That You Feel Fine.**

The argument 'I mow the lawn high every week' is the same argument as 'I drive fine when I've had a couple of drinks.' The task feels manageable. The specific impairment — the millisecond delay in detecting a child running into the mowing path, the altered depth perception while swinging a trimmer, the reduced reaction time when the chainsaw kicks back — is exactly what impairment makes you unable to assess accurately.

| Equipment | The specific impairment danger | The rule |
|---|---|---|
| String trimmer / weed whacker | Rotating at 10,000+ RPM, flinging debris at 150+ MPH. Requires constant depth perception (distance from legs, feet, bystanders), spatial awareness, and rapid response to kickback. Impaired depth perception from cannabis specifically increases the risk of self-laceration and bystander injury. | Zero tolerance. Not a task for impaired operation. The debris field and the proximity to the operator's own body make even mild reaction time impairment unacceptable. |
| Riding lawn mower / zero-turn | Heavy equipment that tips on slopes. Rotating blade at full speed beneath the operator. Objects thrown by blade. Children and pets that can appear suddenly and must be detected immediately. | Zero tolerance. The slope-tipping and object-detection requirements are specifically impaired by cannabis, alcohol, and most other substances. The 'I've done this a hundred times' argument applies to routine conditions — not to the one time a child runs across the lawn. |

| | | |
|---|---|---|
| Chainsaw | The most operator-error-dangerous handheld tool available. Kickback is the primary injury mechanism — it is sudden, violent, and completely non-negotiable. Impaired reaction time means the person cannot interrupt the kickback injury sequence. Chainsaw injuries are frequently career-ending or life-ending. | Zero tolerance. No dose of any substance is compatible with chainsaw operation. This is one of the few absolute rules in the harm reduction framework rather than a dose-reduction recommendation. |
| Power tools — circular saw, table saw, drill press | Depth perception requirements, blade exposure, sudden-stop resistance. Alcohol specifically impairs the depth perception needed for accurate cutting. Cannabis specifically impairs the steady-hand fine motor control that keeps fingers away from blades. | Zero tolerance for sharp-blade power tools. Low-risk cordless tools (drills, impact drivers) at very low doses of mild substances may be acceptable for experienced users — but the 'experienced user' self-assessment is itself impaired under the substance. |
| Ladders — extension ladders, step ladders | Falls from ladders are among the leading causes of home injury death and serious injury. Alcohol and cannabis both impair balance and the specific spatial judgment needed for safe ladder placement and operation. | Zero tolerance above 6 feet. The 6-foot fall that kills you is the fall you did not expect because your depth perception was compromised. |

## B.2 — The Swimming and Water Activity Problem

Drowning is the third leading cause of accidental death globally. Alcohol is involved in approximately 70% of adult drowning deaths. Cannabis impairs the judgment that prevents persons from entering water at unsafe depths, temperatures, or currents. The combination is particularly dangerous because water environments require rapid, continuous judgment about distance, depth, current, and temperature — all of which are specifically impaired.

**⚠ Do not swim, kayak, paddleboard, boat, or enter water of any depth when impaired by any substance. The combination of alcohol's warmth-masking effect and cold water can produce sudden cardiac failure. The drowning reflex requires the same reaction time that impairment removes.**

SECTION C

# TRUCKER METH

## C.1 — The Full Monte: Long-Haul Driving, Stimulants, and the Rebound Crash

**THE CENTURION — The Trucker Who Took Meth to Stay Awake Did Not Fall Asleep Because of the Meth. He Fell Asleep Because the Meth Finally Ran Out.**

Methamphetamine and amphetamine use among long-haul truck drivers is documented, persistent, and specifically dangerous in ways that are different from other substance-driving combinations. The danger is not primarily in the using phase — it is in the rebound phase. Understanding this is essential for anyone using stimulants to extend wakefulness in an operating context.

## C.2 — The Stimulant-Wakefulness Trap

| Phase | What is happening neurologically | What is happening to operating capacity |
|---|---|---|
| Phase 1: Initial stimulant dose (0-4 hours) | Dopamine and norepinephrine flooded into the synapse. Wakefulness signals override natural sleep drive. Cortisol elevated. The subjective feeling of alertness is real — and for a sleep-deprived individual, driving performance may genuinely improve from the sleep-deprived baseline. | APPEARS improved from the severely sleep-deprived baseline. This is the danger: the comparison is not to rested, it is to severely impaired-by-sleep-deprivation. The stimulant restored some capacity. It did not restore full capacity. |
| Phase 2: Stimulant effectiveness declining (4-8 hours) | Dopamine stores are depleted faster than they can be synthesized. The stimulant is maintaining wakefulness by forcing dopamine release — but the pool available is diminishing. Judgment and impulse control begin deteriorating while wakefulness | Operating capacity is declining even as wakefulness continues. The driver is awake but making increasingly poor decisions about following distance, speed, route, and risk. They cannot accurately assess this decline because the metacognitive impairment has |

| | | |
|---|---|---|
| | is maintained. | arrived. |
| Phase 3: Rebound crash (8-20 hours, variable) | The forced dopamine depletion can no longer maintain wakefulness. The natural sleep drive, which has been accumulating during the entire stimulant period, is now unopposed. Sleep onset can be sudden — within minutes of the first subjective sense of tiredness. | The trucker who was awake and driving 20 minutes ago and is now asleep at the wheel of a 40-ton vehicle. Not gradually drowsy — suddenly asleep. This is the specific mechanism behind multiple multi-fatality truck crashes attributed to stimulant use. |
| Phase 4: Extended rebound and cognitive impairment | After a severe meth-forced wakefulness session, the sleep required to restore normal function is 12-24 hours. During the initial sleep phase, REM rebound produces vivid and sometimes disturbing dreaming. The first 4-6 hours of wakefulness after the rebound sleep may still involve cognitive impairment. | The trucker who 'slept it off' for 8 hours and is back on the road may still be in the cognitive recovery phase, with impaired reaction time and judgment that does not feel like impairment. |

## C.3 — What the Biology Actually Requires

The human body requires sleep. Not because of insufficient willpower but because sleep is when the glymphatic system clears the metabolic waste products that accumulate during wakefulness — specifically adenosine and beta-amyloid. Stimulants defer the clearance. They do not eliminate the need. Every hour of stimulant-forced wakefulness adds to the debt that will be collected, with interest, at some subsequent point.

The safe operating limit for long-haul driving is not determined by the driver's subjective sense of alertness — it is determined by the accumulated sleep debt, the hours since last full sleep, and the metabolic state of the brain performing the driving task. Stimulants mask the felt sense of these limits without addressing the underlying limits.

**The Recovery Kernel's position on trucker stimulant use:** The use case is real: a driver who is severely sleep-deprived and has no option to stop may face the choice between stimulant-assisted impaired driving and fall-asleep-immediately-impaired driving. This is a false choice — the correct answer is stopping. If stopping is genuinely not possible, the stimulant does reduce one specific risk (falling asleep in the next hour) while creating another (the rebound crash in several hours). This is not harm elimination. It is harm redistribution across time. The fleet that mandates multi-day runs without adequate sleep is producing this choice. The driver should not be the one who pays for the fleet's operational schedule.

SECTION D

# DAREDEVILISM AND HIGH ACTIVITIES

## D.1 — Why Substances Specifically Amplify Daredevil Behavior

**THE CENTURION — The Fun That Seems Like More Fun Is Often More Dangerous Than the Pre-Dose Judgment Would Have Sanctioned. That Is Not a Coincidence.**

The same mechanisms that make substances enjoyable — the dopamine surge, the opioid receptor activation, the serotonin flood, the norepinephrine arousal — specifically alter the two cognitive systems that generate appropriate caution: the amygdala (the threat-detection system) and the prefrontal cortex (the risk calculation system). When both are impaired simultaneously, behavior that the sober person would never sanction feels reasonable, exciting, or even obviously correct.

| Substance | How it specifically amplifies daredevil behavior | The specific daredevil risk it creates |
|---|---|---|
| Alcohol | Reduces amygdala fear response (the threat alarm is quieter). Simultaneously impairs prefrontal risk calculation (the cognitive system that computes actual risk is slower and less accurate). The result: less fear from genuinely dangerous situations, less accurate calculation of how dangerous they are. Double impairment of safety judgment. | Physical challenges, fights, jumps, climbs, and feats that the sober self would not sanction. The person who would never jump from that balcony into the pool does it drunk because the fear that normally prevents this decision is pharmacologically suppressed. |
| Cannabis at high doses | Bidirectional: some users experience paranoia and acute anxiety (increased threat perception). Others experience reduced threat perception, altered body ownership ('this doesn't feel like my body'), and altered time and distance | The cannabis daredevilism risk is specific: altered depth perception, altered time perception, and altered body-ownership sensation combine to make physical activities feel different from how they actually are. The roller coaster that felt |

| | | |
|---|---|---|
| | perception. The direction is dose, set, setting, and genetic COMT dependent. | manageable becomes overwhelming. The jump that seemed short was not. |
| MDMA | Massive serotonin release produces pro-social warmth, reduced social anxiety, and a specific sense of invincibility — the sense that everything is okay and will be okay. Simultaneously impairs thermoregulation (produces hyperthermia during physical activity) and may suppress the fatigue signals that normally limit physical exertion. | Physical overexertion without feeling the normal limits. Dancing for hours without hydrating. Physical challenges in the name of 'everyone's doing it.' Hyperthermia (overheating) is the primary cause of MDMA-related death and is specifically produced by extreme physical activity at high doses. |
| Stimulants — cocaine, methamphetamine | Produce a specific reduction in loss-aversion — the cognitive feature that makes people fear losing something more than they value gaining something equivalent. The stimulant-impaired person takes risks that their normal loss-aversion would prevent because the loss-aversion signal is pharmacologically quieted. | Driving at extreme speeds feeling in control. Physical challenges accepted for the dopamine of winning. Financial risks. Physical fights entered over trivial provocations. The common thread: normal risk aversion is suppressed; risks that were below the action threshold now cross it. |

## D.2 — The Roller Coaster and the Specific Problem of Sensory Overload

JR Token names the roller coaster specifically, and it is worth specific treatment. Roller coasters are designed for the sober nervous system — engineered to the edge of what the human stress response can process and remain pleasant. The engineering assumes an unimpaired threat-detection and sensation-processing system.

| What the roller coaster requires of the nervous system | What substances do to those requirements |
|---|---|
| Rapid processing of vestibular input (the inner ear sense of orientation and motion). Accurate assessment of immediate physical safety (am I secured, am I about to fall). Emotional processing of high-intensity stimulation without panic response. Return to baseline quickly after | Cannabis at moderate-to-high doses: vestibular processing is specifically disrupted. The sense of motion becomes disorienting rather than thrilling. Depth perception is impaired — the height of the drop is experienced differently than its actual height. Panic attacks during roller |

| | |
|---|---|
| the acute stimulation ends. | coasters under cannabis are not rare. Alcohol: nausea on rotation and drops is dramatically increased. The vestibular system is specifically disrupted by alcohol, which is why spinning feels worse drunk — and roller coasters amplify this. Stimulants: the already-elevated cortisol and norepinephrine from the stimulant combines with the coaster's acute stress response to produce heart rate and blood pressure levels significantly beyond what either would produce alone. For people with cardiac vulnerability — which stimulant use creates — this combination is dangerous.  MDMA: can tip into acute anxiety and panic, especially if the substance effects are declining and the comedown anxiety is beginning. |

SECTION E

# THE TRAUMA EMBEDDING PROBLEM

*What Happens to Frightening Experiences That Occur in Altered States*

## E.1 — The Neural Encoding of Experience Under Substances

**THE CENTURION — The Drug May Make You Do Things You'll Regret. More Importantly, It Changes How Those Things Are Stored in Your Brain — In Ways That Require Significantly More Therapy to Reconcile.**

This is the section that is most important and least understood. Most people think of substance-related harm in terms of the immediate experience — the accident, the injury, the embarrassing moment. What is less understood is what happens to those experiences neurologically — how they are encoded in memory, and why substance-state traumatic memories are specifically harder to process than sober-state traumatic memories.

## E.2 — How Memory Encoding Works Normally

Memory consolidation involves two primary brain structures: the hippocampus (which encodes the narrative sequence — what happened, in what order) and the amygdala (which encodes the emotional valence — how threatening, how important this was). Traumatic memories are specifically those in which the amygdala marks the event as highly threatening, producing a memory that is encoded with high emotional salience and sometimes with fragmentation — the traumatic memory is often disjointed, sensory, and involuntary.

The neurochemical state of the brain at the time of encoding affects the quality and character of the memory formed. State-dependent memory is well-documented: memories encoded in a specific state are best recalled in that same state. The memory of what happened while drunk is best recalled when drunk. The memory of what happened while high may be partially inaccessible when sober — and may surface unexpectedly when the substance is used again.

## E.3 — What Substances Do to Traumatic Memory Encoding

| Substance | What it does to the | What this produces in the |
|---|---|---|

| present during trauma | encoding | long-term |
|---|---|---|
| Alcohol | Alcohol at moderate-to-high doses impairs hippocampal encoding — the narrative sequence of the traumatic event is fragmented or entirely absent (blackout). The amygdala's emotional encoding may proceed normally or may be impaired depending on the dose. The result: high emotional salience without narrative coherence. | The fragmentary alcohol-mediated trauma is specifically difficult to process in therapy because the narrative that would normally anchor the emotional processing is absent or incomplete. The person feels the fear, the shame, the body response — but cannot construct the complete story that therapy uses to integrate the experience. 'I know something terrible happened but I can't remember it' is one of the most distressing post-trauma states. |
| Cannabis — high dose | High-dose cannabis disrupts hippocampal encoding specifically — cannabis receptors (CB1) are densely expressed in the hippocampus. The narrative encoding of the traumatic event is disrupted. The sensory encoding (what things looked, felt, smelled like) may be hyperenhanced. | The cannabis-mediated traumatic memory is often strongly sensory but narratively incomplete. The specific sights, sounds, and physical sensations of the trauma may intrude involuntarily (flashback-like experiences) while the coherent narrative is absent. This combination is particularly difficult to integrate. |
| MDMA — context-dependent | MDMA changes emotional encoding by flooding serotonin and reducing the normal fear response. This is why MDMA-assisted therapy can reduce PTSD — the traumatic memory is reprocessed in a state where the fear response is reduced, allowing integration. But if a frightening or traumatic event occurs DURING MDMA use, the encoding is also altered — the boundary between the intended emotional softening and the unexpected trauma is blurred. | MDMA-mediated trauma is unpredictable in its later effects. The memory may be less fear-tagged (protective), or it may be stored with the specific sensory distortion of the MDMA state in ways that are confusing to access sober. The 'bad trip' under MDMA can produce specifically disturbing memories that do not integrate easily because they do not match the normal sensory experience of the world sober. |
| Stimulants | High cortisol and norepinephrine states (which stimulants amplify) are specifically associated with | The stimulant-mediated traumatic event is often extremely vivid and intrusive. The same arousal mechanism |

| | | |
|---|---|---|
| | stronger, more intrusive traumatic memory consolidation. The hyperarousal of stimulant use during a frightening event causes over-consolidation — the memory is encoded with excessive strength and emotional salience. | that makes stimulants feel intense and important causes traumatic experiences during stimulant use to be encoded with similar intensity and importance. These memories are often among the most treatment-resistant in the person's therapeutic history. |

## E.4 — What This Means for Daredevil Activities

The specific insight: the thing that makes the roller coaster more exciting while high — the altered sensory experience, the heightened arousal, the altered emotional processing — is the same thing that makes a terrifying experience while high more traumatically encoded. The upside and the downside are the same mechanism.

The roller coaster panic attack under cannabis is not just unpleasant in the moment. It is encoded with the specific cannabis-state neurological modifications and the high emotional arousal of panic — producing a memory that may produce anxiety responses to cannabis, to roller coasters, or to the specific sensory environment (the sounds, the visual field, the g-force sensation) for years afterward. Phobias are formed exactly this way.

The car accident while drunk is not just physically dangerous. The traumatic memory produced by a high-arousal terrifying event during an alcohol-impaired state is specifically fragmented and non-integrable in the ways described above. The person who survived a drunk driving crash may carry the trauma of it in a form that is more difficult to process than the same crash sober would have been.

**The Recovery Kernel principle:** The activity that you can do high safely has a lower ceiling than the activity you do sober. The ceiling is determined not just by the immediate physical danger but by the neural cost of the frightening experience if things go wrong. The daredevil activity with a 5% chance of a terrifying experience produces a 5% chance of a high-state traumatic memory that may require years of therapy. Calibrate accordingly.

SECTION F

# THE PROTOCOLS

## F.1 — The Dose-by-Environment Matrix

**THE CENTURION — The Right Dose for the Wrong Environment Is the Wrong Dose. Calibrate the Environment Before You Calibrate the Dose.**

The fundamental harm reduction principle for activity safety: the maximum safe dose for any substance is not fixed — it is determined by the activities you will need to perform in the next 8-12 hours. The dose that is appropriate for a relaxed evening at home is not the dose for an evening that might involve driving, machinery, or activities with fall risk. The assessment happens before dosing.

| Activity environment | Alcohol | Cannabis | General principle |
|---|---|---|---|
| Operating any motor vehicle (car, motorcycle, boat, ATV) | ZERO. No standard. No 'just one.' The legal limit is not the impairment limit. | ZERO. Including if you used this morning. Edible zero for the full day. | The car/boat/motorcycle is a zero-dose environment. There is no dose that is acceptable when operating vehicles. The plan for the vehicle is made sober and does not change during the session. |
| Operating power tools, machinery with blades or rotating parts, ladders above 6 feet | ZERO. | ZERO. | Same as vehicles. The machinery operating environment is a zero-dose environment. No exceptions for 'I've done this a thousand times.' |
| Supervised recreational physical activity — hiking on known trail, cycling on path, swimming in supervised area | Very low dose only (1 standard drink maximum, consumed 2+ hours before, well below functional impairment). Honest self-assessment | Very low dose — one small inhalation, 2+ hours prior. At doses above minimal, coordination and depth perception are impaired for activities with | Recreational physical activity has a low dose ceiling. The fun of being slightly high while hiking is not worth the specific fall and judgment risk above minimal doses. Know the trail, have a sober companion, go low and slow. |

| | | | |
|---|---|---|---|
| | required. | fall or collision risk. | |
| Social activity — party, gathering, entertainment venue with no driving | Social drink range — up to 3-4 standard drinks over an extended evening for most adults, with food and water, with no driving plan. | Individual dose range — the person's familiar range in a familiar social setting with no operating obligations. | The social no-driving environment is where the person has the most latitude. The limit is still defined by comfort and enjoyment — not by how much is available or by social pressure. Dosing to personal ceiling, not social ceiling. |
| Home environment with no obligations (full evening free, no driving, no machinery) | Full personal comfortable range. Not more — 'more' is never an improvement. | Full personal dose range with no ceiling beyond personal tolerance and comfort. | The home-no-obligations environment is the highest-latitude environment. The person who uses in this environment with the car keys locked away, no machinery obligations, and a plan for the evening is in the environment the substance was actually designed for. |

## F.2 — The Time-to-Clear Protocol

Before any activity with operating requirements, know the minimum time-to-clear for your substance. These are floors — not ceilings. Genetic CYP450 variation, food intake, hydration, body weight, and individual sensitivity all affect these timelines.

| Substance | Minimum time to vehicle operation | Minimum time to machinery operation | The honest caveat |
|---|---|---|---|
| Alcohol — 1 standard drink | 2 hours minimum. 3 hours is safer. | 3 hours minimum. | Weight, food, and hydration dramatically affect these timelines. When in doubt, double the estimate. |
| Alcohol — 3 standard drinks | 5-6 hours minimum. Morning is safer. | 6-8 hours minimum. | 3 drinks consumed rapidly (2 hours) vs. slowly (5 hours) produces very different BAC |

| | | | |
|---|---|---|---|
| | | | curves. Rapid consumption requires more recovery time. |
| Cannabis — smoked, one inhalation | 3 hours minimum. | 3 hours minimum. | High-tolerance users may have less impairment at 2 hours. High-potency material requires more time. Edibles — see below. |
| Cannabis — edibles, standard dose | 8 hours minimum from ingestion. Not from feeling high — from ingestion. | 8-10 hours from ingestion. | The only safe rule for edibles and vehicles: if you consumed an edible today, you are not driving today. The onset variability makes precision timing impossible. |
| MDMA — standard recreational dose | 12 hours minimum. | 12 hours minimum. | The cognitive impairment residue of MDMA extends beyond the acute effects. The 'next morning' driving may still be impaired. |
| Ketamine — intranasal, standard dose | 6 hours minimum. | 6 hours minimum. | Ketamine's dissociative effects can persist longer than the felt impairment. The sense of being 'back' may precede full cognitive restoration. |
| GHB — recreational dose, no alcohol combination | 4 hours minimum from last dose. | 5 hours minimum. | GHB + ANY alcohol requires a full night before vehicle operation. The combination produces unpredictably deeper and longer sedation. |

| | | | |
|---|---|---|---|
| Cocaine — one line, nasal | 3 hours minimum. | 3 hours minimum. | The confidence increase during cocaine use is opposite to what driving requires. After the peak, the rebound anxiety and fatigue impair judgment. |

## F.3 — Administration Route and Dose Control

The route of administration determines the onset speed, peak intensity, and duration of impairment. Understanding routes is essential for harm reduction because it determines how predictable the impairment is — and how controllable.

| Route | Onset | Duration of impairment | Controllability for activity planning |
|---|---|---|---|
| Inhaled — smoked, vaped | 30 seconds to 5 minutes | 2-4 hours for most substances | HIGH controllability. Rapid onset means the person can titrate — use a small amount, assess impairment, wait, decide about more. Onset is fast enough to match the dose to the desired state. |
| Intranasal — insufflated | 5-15 minutes | 30-90 minutes for most stimulants | MODERATE controllability. Faster than oral, slower than inhaled. Allows some titration. |
| Oral — swallowed, capsule, drink | 20-90 minutes | 4-8+ hours for most substances | LOW controllability. The person who takes an oral dose at T=0 has committed to a dose that will peak at T=1-2 hours and clear at T=6-8 hours. They cannot reduce the dose |

| | | | |
|---|---|---|---|
| | | | once swallowed. Edibles are the most common route for impaired driving because the gap between dose and impairment allows poor planning. |
| Sublingual — under the tongue | 5-20 minutes | 2-6 hours | MODERATE controllability. Better than swallowed, less than inhaled. |
| Rectal — plugging | 15-30 minutes | 4-6+ hours | LOW controllability. Once administered, cannot be retrieved. Duration is longer than most other routes. |
| Intravenous — injected | Seconds | Variable but often shorter acute peak than other routes | LOWEST controllability for the person without medical training. Dose precision is critical and very difficult to achieve. The immediate bioavailability means overdose risk from minor dose errors is highest. |

**The practical rule:** For any situation where you might need to operate a vehicle or machinery within 6 hours: prefer inhaled or intranasal routes over oral, because the faster onset allows titration — you can assess impairment before committing to more. Oral dosing (especially edibles) is specifically dangerous for people who might need to drive because the committed dose may produce its peak after the person has already made the driving decision based on the not-yet-peak state.

# G — The Respect Framework: What the Limits Are Protecting

**THE CENTURION — Setting limits is not about limiting the fun. It is about protecting the things that make the fun worth having.**

JR Token's framing is precise: the dangers are not just health. They are to property, relationships, and memories. Each of these deserves specific attention:

| What is being protected | How impaired activity damages it | What setting the limit actually preserves |
|---|---|---|
| Property | A DUI produces: legal fines ($10,000-$30,000 average total cost including legal fees, insurance increases, and lost wages), vehicle damage, potential civil liability. A machinery accident produces: hospital bills, tool replacement, property repair, lost work capacity. The financial consequence of one impaired activity can eliminate years of economic progress. | Financial stability. The money that would have paid for the accident goes toward the thing that was actually planned — the vacation, the home improvement, the education. The property that was going to be damaged is still intact. |
| Relationships | The accident or injury that involves another person (vehicle collision, machinery accident involving a bystander) produces consequences that extend to both parties for years. The person who drove drunk and injured someone else carries that consequence in every interaction with the other person's name. The relationship with the family member who was in the car is permanently altered. | The relationships are still what they were before the session. The people who trusted you with their safety in the car, at the work site, at the party are still unharmed. The absence of the specific event that would have changed everything is invisible — but it is the most important outcome. |
| Memories | The traumatic experience under substances is encoded differently, as Section E describes. But even non-traumatic impaired activities produce memory gaps, behavior that the sober self | The memory of the evening is intact and belongs to the person who lived it. The things that were done were things the sober self would recognize and own. The relationship with the evening is one of 'I did this' |

| | | |
|---|---|---|
| | would not sanction, and the specific regret of waking up with no clear account of what happened and what was done. The blackout is not a break in memory — it is a break in the self. | rather than 'I think I did this.' |
| The future self | The consequence of the impaired activity does not end when the impairment ends. The legal record follows. The physical injury heals to the extent it heals. The traumatic memory requires the therapy that the person has to find and afford. The relationship that was damaged requires repair that may or may not succeed. The property consequence requires the financial recovery that takes years. | The future self who did not have the impaired activity incident is the same person who gets to keep using in a way that is sustainable. The person who crashed the car drunk is the person who cannot afford to use, who lost the license that allowed use mobility, who is now carrying legal and financial weight that impairs every subsequent decision. The limit is what allows the long game. |

# The Recovery Kernel Impaired Activity Protocol — Summary

**THE CENTURION — Before the First Dose, the Plan Is Made. During the Dose, the Plan Is the Plan.**

### THE BEFORE-YOU-USE ACTIVITY CHECKLIST

1. VEHICLES: Is the car parked in its location for the evening? Is the rideshare plan confirmed? If I need to move the car in an emergency, who is driving it?

2. MACHINERY: Is every piece of equipment I might use tonight secured in its off state? Is there any task that 'needs doing' that I would normally reach for a tool to complete?

3. ACTIVITIES: What physical activities am I planning for tonight and tomorrow morning? Have I accounted for the time-to-clear against those plans?

4. ROUTE: Am I using a route (edible, oral) where the peak arrives significantly after the dose? If yes, the driving decision must account for the peak, not the current state.

5. DOSE CALIBRATION: What environment am I in? What is the appropriate dose ceiling for this environment? The dose is set before the first dose, not adjusted upward from inside it.

6. COMPANIONS: Does someone in this group know what substances are in use and have the capacity and willingness to intervene if needed?

**The fun is real. The limits protect it. The person who crashes the car drunk is not having more fun than the person who took the rideshare. They are having a different and significantly worse outcome from the same evening.**

---

Recovery Kernel | Respect the Environment | Harm Reduction Series

Crisis: 988 | Poison Control: 1-800-222-1222 | Emergency: 911

*Read with: The Safety Net | The Safety Net Addendum | DNA First | The Full Inventory*

**Respect the car. Respect the environment. Respect the plan you made when you were sober.**